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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/976,964	10/11/2001	Edwin James Harris IV	112690-098	2962
29176	7590	10/06/2004	EXAMINER	
BELL, BOYD & LLOYD LLC P. O. BOX 1135 CHICAGO, IL 60690-1135			VIJAYAKUMAR, KALLAMBELLA M	
			ART UNIT	PAPER NUMBER

1751

DATE MAILED: 10/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/976,964

Applicant(s)

HARRIS, EDWIN JAMES

Examiner

Kallambella Vijayakumar

Art Unit

1751

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 July 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) 10-32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Detailed Action

- Claims 1-32 are pending with the application, and claims 10-32 have been withdrawn from consideration.
- Applicant's arguments filed 07/13/2004 have been fully considered but they are not persuasive. The rejection of Claims 1-9 under 35 USC 103(a) *Simendinger et al* further in view of *Neuhalfen* has been dropped. The rejection of Claims 1-9 under 35 USC 103(a) over *Simendinger et al* further in view of *Shrier et al*; and the rejection of Claims 1-3 and 9 under 35 USC 103(a) over *Shrier et al* in view of *Rector et al* have been maintained by the office for the following reasons:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

1. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simendinger et al (WO 97/21230) further in view or Shrier et al (WO 96/02924).
- Claims 1-9 were rejected under 35 U.S.C. 103(a). This rejection is set forth in a prior Office Action, mailed on 09/04/2003.
 - Applicants argue that that to establish the obviousness there must be a suggestion in the prior art or in the knowledge of persons of ordinary skill in the art, to suggest desirability of the claimed features. Applicants further argue that Simendinger et al teaches conventional VVM and not a self-supporting one. The office agrees with the arguments by the applicants. Applicants argue that substantial motivation is required to modify Simendinger to arrive at the invention by the applicants. However, the applicants do not respond to the modification of Simendinger et al in view of Shrier et al.
 - Simendinger et al teach the polymeric VVM comprising of a polymer such as an epoxy <Pg-4, Ln-19>, conductive fillers such as metallic powders of Al, Ni, Ag, semiconductive oxide powders such as Fe₂O₃, TiO₂, ZnO (doped and undoped) and inert fillers such as Mg (OH) 2 <Pg-5, Ln: 27, 32-37; Pg, 8, Ln: 8-14> prepared blending of components <Pg-8, Ln: 36-37>. These are the same materials claimed by the applicants in instant claims 1-4 and 7-10 and Simendinger et al do not limit to the use of VVM materials to any specific numbers in the mixture.
 - Simendinger et al do not disclose the free-standing/self-supporting VVM.
 - Shrier et al (-922) disclose a VVM-Substrate comprising of a reinforcing layer of insulating material of a low compressibility fabric of insulating materials such as polymer tape, polymer fibers and glass, that is impregnated with a variable voltage material, that is impregnated with

a VVM- material, followed by reinforcing between rollers, wherein a self supporting VVM substrate film would be obvious (Abstract, Pg-8, Ln-1 to Pg-9, Ln-30; Pg-10, Ln: 17-27; Page-16, Lines: 27-31, Fig-1). Shrier et al further teach that any VVM material known in the art could be used in making the VVM substrate, and a typical VVM material blend comprised of metallic aluminum powder, Al_2O_3 and antioxidants, and further made the VVM substrate by impregnating the mesh/fabric in the VVM material by a variety of methods appreciated by one of ordinary skill in art including dipping reinforcing material in the VVM material blend <Pg-8, Ln: 28-29; Pg-12, Ln: 1-21 >. Further, Shrier et al make the VVM Substrate by using same components and by the same method as coating the reinforcing member with VVM material by dipping in the resinous bath, as disclosed by the applicants in the specification <Sections: 0060-0061>. and a free-standing/self-supporting VVM-Substrate would be obvious.

- The structure implied by the process steps should be considered when assessing the patentability of product-by-process claims over the prior art, especially where the product can only be defined by the process steps by which the product is made, or where the manufacturing process steps would be expected to impart distinctive structural characteristics to the final product. See, e.g., *In re Garnero*, 412 F.2d 276, 279, 162 USPQ 221, 223 (CCPA 1979).
- The claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977).
- It would have been obvious for a person of ordinary skill to modify the VVM-substrate composition of Shrier et al by modifying the VVM material fillers by optionally including well known fillers such as Al/Ag and/or TiO_2/ZnO and/or resins such as epoxy/polyimide per the teachings of Simendinger et al to benefit from wide range of ESD characteristics, because Shrier et al are suggestive of such modifications and Simendinger et al teach their benefits, and both the teachings are in the analogous art, and with the expectation of

reasonable success in obviously arriving at the limitations of the instant claims by the applicants.

2. Claims 1-3 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shrier et al (WO 96/02924) in view of Rector et al (WO 00/51152).
- Claims 1-9 were rejected under 35 U.S.C. 103(a). This rejection is set forth in a prior Office Action, mailed on 09/04/2003.
 - Applicants argue that Shrier et al would not be inherently be self-supporting as it would require the application of a mat or a mesh to achieve the support and the office agrees with this. Applicants further argue that the supporting capabilities of a mesh or mat is not taught or suggested having any support capabilities and this is merely an extrapolation beyond the teachings of the reference. The office disagrees with this allegation because this property would have been obvious and the reinforcement by the fabric/tape/mesh/fiber/mat has been expressly taught by Shrier et al, through out their disclosure <Pg-4, Ln: 16-22; Col-14, 27-30>. Further, Shrier et al make the VVM Substrate by using same components and by the same method as coating the reinforcing member with VVM material by dipping in the resinous bath, as disclosed by the applicants in the specification <Sections: 0060-0061>.
 - Shrier et al (-922) disclose a VVM Substrate comprising of a reinforcing layer of insulating material of a low compressibility fabric of insulating materials such as polymer tape, polymer fibers and glass, that is impregnated with a VVM material, followed by reinforcing between rollers, wherein a self supporting VVM substrate film would be obvious (Abstract, Pg-8, Ln-1 to Pg-9, Ln-30; Pg-10, Ln: 17-27; Page-16, Lines: 10-31, Fig-1). Shrier et al further teach that any VVM material known in the art could be used in the application and a typical VVM

material blend comprising a polymer, metallic aluminum powder, Al₂O₃ and antioxidants, and further made the VVM substrate by impregnating the mesh/fabric in the VVM material blend by a variety of methods appreciated by one of ordinary skill in art including dipping reinforcing material in the VVM blend <Pg-8, Ln: 28-29; Pg-12, Ln: 1-21 >, that are identical to the materials and the methods used by the applicants: DIPPING MESH/FABRIC IN A VVM-BATH <Instant Specification: Sections: 0060-0061, Instant Claims 1-9> and a free-standing/self-supporting VVM Substrate would be obvious.

- Shrier et al did not disclose the free self-supporting VVM substrate discretely, although this property would have been obvious, and the state of the art is shown by Rector et al (-152), who discloses a thin film over-voltage circuit protection device that could be used in a surface mount configuration that could further be configured with various configurations of the electrodes (Abstract). Rector also disclose the voltage variable polymeric material to contain a uniform dispersion of conductive particles in a polymeric material (Pg-7, Ln: 9-17) the Rector et al further disclose the use of solid sheets of FR-4 epoxy and the polyimide substrates in the fabrication of PC Boards (Pg-8, Ln: 6-7).


Conclusion

- **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).
- A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end

of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

- Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kallambella Vijayakumar whose telephone number is 571-272-1324. The examiner can normally be reached on M-Th, 07.00 - 16.30 hrs, Alt. Fri: 07.00-15.30 hrs.
- If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Yogendra Gupta can be reached on 571-272-1316. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.
- Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KMV
October 01, 2004.


YOGENDRA GUPTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700